



## WHEN COLD SEASONS COME AROUND, IT'S BEST TO DRESS C-O-L-D

### V Corps Safety Office release

The best defense against cold air is layers of...air?

That's right. Extreme cold weather protective clothing is designed to trap warm, dry air against the body. The idea is to prevent loss of body heat -- and cold injuries -- without making the wearer too warm.

The quickest way to remember the 'rules' of dressing for the cold is with the acronym COLD:

a message from the v corps safety team

**Dress for the COLD:**

Keep clothing **CLEAN**.  
Avoid **OVERHEATING**.  
Dress **LOOSE** and in **LAYERS**.  
Stay **DRY**.



**The MISSION ain't COMPLETE 'til YOU get home SAFE**

C is for "keep it *clean*." Dirt and grease, like water, reduce clothing's warming air space and insulating properties, so it must be kept clean to work best.

O is for "avoid *overheating*." Cold weather gear is designed so some parts -- such as the neck and cuffs -- can be opened to let cold air in if you get too warm. If the wearer gets too warm, he may

begin to perspire, which can slow the effectiveness of winter clothing and cause heat to evaporate from the body, speeding up its cooling process.

L is for “wear it *loose* and in *layers*.” It’s best to wear several loose layers of clothing in the cold. Cold weather gear works by trapping warm air between the layers. Each layer should be slightly larger than the one beneath it, to avoid compressing the necessary air space between layers. If the wearer gets too warm, particularly when working or exercising, clothing can be removed. Gloves or mittens should be removed first, unless they are needed to protect the hands or help in avoiding contact with cold tools or other items. Neck warmers or scarves should be removed next, then headgear. Jackets can be opened at waist and sleeves next, and then unzipped if the wearer is still too warm. Finally, layers can be removed until the wearer is comfortably warm without perspiring. Layers should be put back on in reverse order before the wearer starts feeling cold; otherwise, additional heat has to be generated to re-warm the body.

D is for “keep it *dry*.” The body will chill much faster if it’s wet, especially if there is wind blowing. Shake off any snow, ice, or water droplets that get on outer clothing. Even though cold weather gear is water-repellent, it’s best to brush off snow and ice before entering a warm shelter.

Wool is a good choice of fabric for cold weather gear because it is durable and such a good insulator that it can retain 80 percent of its insulation value even when it’s wet. Down is the best choice for its weight, but optimum in relatively dry places because it loses almost all its insulating value when it’s wet. Polyester fiber is better at retaining its insulating value in wet climates, but heavier than down. Polypropylene

also retains much of its insulating quality when wet, but must be laundered frequently because it retains body odor.

Cotton denim, such as jeans, is a terrible choice in wet weather. If denim gets wet, the wicking action of cotton carries the water upward. Wet and exposed to a breeze, denim can transport heat away from the body as much as 240 times faster than dry skin in warm air.

Vapor barrier systems -- multi-layered fabrics with an impermeable layer bonded between two or more layers of other fabrics -- are designed to slow the body's evaporative heat loss from perspiration, but best in extremely cold weather. This is because if they are worn in weather that is not extremely cold, moisture can collect between the vapor barrier and the body, significantly reducing protection from the cold.

The body's first response to cold is to constrict peripheral blood vessels. That's why fingers feel cold sooner than most other body parts. But a quarter-inch of insulation in gloves is the most that's needed; thicker gloves won't keep fingers warmer. The best protection for hands is actually a three-layer combination -- a thin inner glove of silk or nylon, a thick inner mitten of wool, down or other good insulating material, and a windproof, water repellent outer shell mitten with cuffs that seal midway up the forearm.

A good hat is a must in cold weather, because the head is perhaps the biggest "heat thief" in the body. The brain uses a lot of heat, and will take it from anywhere in the body if necessary. In addition, the skull is a hard surface that conducts heat readily and throws it off readily, too, because it is near the surface of the skin. And the

scalp is thin and chock-full of blood vessels that conduct heat. Wool hats are best, and polypropylene also insulates well. To be effective, hats should cover the scalp, ears and back of the neck. Hoods are less useful, since they are not as snug-fitting as hats.

Thermal underwear should maintain a layer of insulation next to the skin, even when wet. Again, wool and polypropylene are the best choices. In fact, wool is the best choice, because it is less expensive than polypropylene, and provides more warmth for an equal weight.

Good rain gear is imperative for cold weather, because wet clothing will lose most or all of its ability to retain body heat. Rain gear should keep out rain, but also breathe to allow water vapor out. Unfortunately no fabric can do both perfectly, but some come close, and water repellent sprays can increase weather resistance. And while completely waterproof rain gear is available with vents to allow perspiration to evaporate, the wearer is still sure to get wet from perspiration after only a short time. A raincoat should have a hood large enough to cover the wearer's head when he is wearing a cap, and snug enough to keep water out. Coats with seams on top of the shoulders should be avoided, because they tend to leak. All seams should be well sealed and inspected frequently. Zippers should be covered with a flap with fasteners to keep it closed. Pockets should be covered with a flap as well. Cuffs should be closable, but elastic cuffs that can't be adjusted should be avoided, and knit cuffs get wet and stay wet.

Boots should be large enough to allow the wearer to wear two pair of socks without feeling uncomfortable or tight. Boots that are too tight cut off circulation and lose most of their ability to insulate and increase chances of cold injury. Leather is best

for boots, because while it is flexible but provides good foot and ankle support and is porous enough to breathe to let moisture out. Two pairs of socks should be worn -- an inner pair made of cotton to wick moisture away from the feet, and an outer pair of an absorbent material to keep feet warm. Wool is best for the outer pair. An additional pair of a material such as Gore-Tex can be worn in extremely wet weather as well, as long as they don't make boots fit too tightly.

